

## **P-9.5 Explain how depth and fluid density affect pressure.**

**Revised Taxonomy Levels 2.7 B Explain conceptual knowledge**

**Students did not address this concept in physical science**

**It is essential for students to**

- ❖ Understand and use the equation  $P = \rho gh$ 
  - Where
    - ◆  $P$  = pressure
    - ◆  $\rho$  = density of the fluid
    - ◆  $g$  = acceleration of gravity
    - ◆  $h$  = depth of the fluid
- ❖ Understand that the pressure of a fluid does not depend on
  - the shape of the container
  - The volume of the fluid
  - the total weight of the fluid
- ❖ Understand that at any point within a fluid, the forces that produce pressure are exerted equally in all directions

### **Assessment**

The verb, explain means that the major focus of assessment should be for students to “construct a cause and effect model”. In this case, assessments will ensure that students can model the factors that affect the pressure of a fluid. Because the indicator is written as conceptual knowledge, assessments should require that students understand the “interrelationships among the basic elements within a larger structure that enable them to function together.” In this case, assessments must show that students can construct a cause and effect statement relating how each factor, density and depth, affect the pressure of a fluid, as well as the factors which do not affect the density of a fluid.